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Evidence-Based Interventions for Survivors of Terrorism

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Although profoundly changed as a result of terrorist acts, most survivors of mass violence or those who have lost loved ones as a result of terrorism do not develop significant mental health problems or disability. As is the case with any trauma, a relatively small but salient percentage of survivors of terror will develop chronic mental health problems, such as posttraumatic stress disorder (PTSD). Any mental health strategy or plan needs to take into account the number of affected individuals, the available treatment resources, and the research literature. If resources were unlimited, we would attempt to hasten recovery and promote adaptive functioning in every survivor of terrorism. However, in most mass violence contexts, too many affected individuals exist, typically coupled with a lack of well-trained professionals. As a result, secondary prevention of chronic mental health problems and functional disability in those most at risk is the priority. In addition, resources should be devoted to providing evidence-based tertiary prevention for those terror survivors who develop chronic psychiatric problems.

A range of interventions may be useful to prevent or address the negative psychological impact of exposure to terrorist incidents. In the following sections we examine findings from the literature on

acute stress disorder (ASD) and PTSD in terms of their implications for postterrorism intervention. We also discuss prevention and treatment research related to the management of traumatic bereavement and alcohol problems. Moreover, we review current thinking about disaster mental health care and suggest ways of improving care. Attention is given to individual, group, and community-scale interventions during the emergency, early, and later periods of the terrorist event. Special challenges of service delivery in the postterrorism environment are also explained.

Although mental health practitioners generally agree about the need to use empirically supported intervention methods, to date the outcome research examining services for terrorism and disaster survivors is limited. Few of the components of disaster mental health services have been evaluated, and the methodological base of much of the existing research is not sufficiently strong to support clear recommendations. Therefore, in this chapter we discuss and extrapolate from evidence-based interventions that have been applied to trauma-related psychological problems in contexts other than terrorism and disaster and emphasize intervention methods that, if not evidence based, are at least consistent with current evidence and theory.

Evidence-Based Interventions for Trauma-Related Problems

Evidence-Based Treatment for Posttraumatic Stress Disorder

A considerable body of evidence from randomized controlled trials supports the efficacy of cognitive-behavioral therapy (CBT) for acute and chronic PTSD. CBT entails a package of interventions designed to promote stress and affect management, assimilation and accommodation of the meaning of traumatic experiences, and processing of the emotional residue of trauma. CBT entails prolonged exposure to trauma memories and various forms of cognitive restructuring, which involves challenging maladaptive cognitions related to the trauma and replacing these with healthier alternative thoughts. Prolonged-exposure therapy, which involves a repeated therapeutic reliving of traumatic experiences to facilitate emotional processing, is often considered the sine qua non of any effective treatment. However, stress inoculation (applied stress management) and cognitive therapy alone have been shown to be as effective (e.g., Ehlers & Clark, 2003; Foa et al., 1999).

Prolonged-exposure CBT treatments have been found to significantly decrease PTSD symptoms in a range of survivor populations, including Vietnam veterans (Cooper & Clum, 1989; Keane, Fairbank, Caddell, & Zimering, 1989; Boudewyns & Hyer, 1990; Glynn et al., 1999), female sexual assault survivors (Foa, Rothbaum, Riggs, & Murdock, 1991; Foa et al., 1999; Resick, Nishith, Weaver, Astin, & Feuer, 2002), and survivors of varied traumas (Marks, Lovell, Noshirvani, Livanou, & Thrasher, 1998). Cognitive restructuring has been demonstrated to be effective in studies of survivors of mixed traumas (Marks et al., 1998; Tarrier, Pilgrim, et al., 1999), and stress inoculation training (i.e., an anxiety management treatment that makes use of techniques such as breathing, muscle relaxation, and calming self-talk) has performed well with female sexual assault survivors (Foa et al., 1991; Foa et al., 1999). Resick et al. (2002) have demonstrated significant improvements in female rape survivors using cognitive processing therapy, a manualized form of CBT in which elements of exposure and cognitive therapies are combined.

While these studies evaluated individual treatment, there have also been several investigations of

group trauma-focused interventions, although only two known studies were randomized controlled trials. Zlotnick et al. (1997) randomly assigned 48 female survivors of childhood sexual abuse with PTSD to either a 15-week affect-management group or a wait-list control condition. Participants received individual therapy and psychotropic medication beginning 1 month before and throughout the study. Those who completed the group reported significantly fewer PTSD symptoms compared to those in the control condition. Schnurr et al. (2003) conducted a multisite randomized and controlled trial of group therapy for PTSD in Vietnam veterans ($n = 360$). Veterans were assigned to either trauma-focused group therapy or to present-centered group treatment, in which participants were explicitly instructed not to discuss their trauma. Weekly groups were held for 30 weeks, followed by a tapered treatment of one session per month for 5 months. Results indicate that PTSD symptoms improved from baseline, with 40% of participants demonstrating significant changes in symptoms; however, there was no significant difference between the trauma-focused and the present-centered groups. When excluding participants who did not attend a sufficient number of treatment sessions, results indicate that avoidance and numbing symptoms were reduced more in trauma-focused group participants, although dropout rates were higher in this group.

Applications to Terrorism

CBT is the prescriptive treatment for PTSD. It is important to note that not everyone is helped by CBT and that positive symptoms (e.g., intrusive thoughts) are more likely to improve than negative symptoms (e.g., avoidance). Furthermore, because PTSD is a chronic problem for many, we should not assume that people necessarily regain their pre-trauma functioning completely. Given these qualifiers, for those who are traumatized as a result of their exposure to a terrorist attack and develop PTSD, some variant of CBT would arguably be useful. Future randomized controlled trials should confirm this expectation.

Studies are needed to demonstrate the efficacy of group treatment following a terrorist attack. The existing studies demonstrate symptom improvement regardless of the modality of therapy. One possibility is that the crucial ingredient in symptom improvement is the support that group therapy

offers, given the absence of other forms of treatment. However, in at least one of the group studies, participants were receiving concurrent individual and psychopharmacological interventions. Overall, group therapy seems to be better than no treatment and in and of itself is a cost-effective intervention; however, in the best-case scenario, group therapy should perhaps be utilized in conjunction with individual treatment.

To date, there is only one study of a group intervention for survivors of a terrorist attack. This was conducted in Israel following an attempt to use a Palestinian vehicle filled with explosives to blow up an Israeli bus (Amir et al., 1998). The 15 women participating in group debriefing plus brief group psychotherapy were not injured in the attack and participated in six group sessions in the 2 months following the attack. The group included psychological debriefing (i.e., each woman spoke about her memories of the trauma in a safe environment), normalization of feelings, discussion of coping strategies, cognitive restructuring, and a focus on return to pretrauma functioning.

Symptoms were assessed 2 days, 2 months, and 6 months after the terrorist event. PTSD symptoms improved at 2 and 6 months when compared to 2 days after the event. At the 6-month follow-up, 27% of participants met all of the criteria for a PTSD diagnosis. Due to the lack of a control group and nonrandomized design, it is difficult to ascertain whether improvements in symptoms were due to the natural course of recovery or to the intervention. While this intervention employed a combination of psychological debriefing and group psychotherapy immediately following exposure to a terrorist event, there is emerging consensus that psychological debriefing is contraindicated on empirical and conceptual grounds directly following exposure to trauma (e.g., Litz & Gray, 2004).

Evidence-Based Treatment for Traumatic Grief

Prigerson et al. (1999) have proposed that traumatic grief is a distinct disorder (i.e., separate from PTSD, depression, or other anxiety disorders) and offered a classification system by which clinical problems with traumatic grief or complicated bereavement can be identified. According to this taxonomy, to receive a diagnosis of traumatic grief, a person must experience the death of a loved one

and report three of the following four symptoms: intrusive thoughts about the deceased, yearning for the deceased, searching for the deceased, and/or loneliness as a result of the death. Additionally, the person experiences a host of other possible symptoms (e.g., purposelessness, numbness, difficulty acknowledging the death), with symptoms lasting at least 2 months, and the disturbance needs to cause significant impairment in functioning. Clinically, many of the symptoms and problems of traumatic grief are conflated with PTSD symptoms, but clinicians may mistake traumatic bereavement for PTSD, which is inappropriate because the latter disorder fails to capture the unique problems that result from loss (e.g., Neria & Litz, in press; Raphael, Minkov, & Dobson, 2001). Because of the possible sheer magnitude and the horrific nature of deaths due to terrorism, traumatic grief is important to examine as a separate clinical problem in relation to coping with loss in the context of terrorist events.

There are few systematic and specialized treatments for traumatic grief. Shear et al. (2001) have developed a treatment that is a combination of interpersonal therapy for depression and CBT for PTSD. These researchers conducted an uncontrolled, 16-session pilot study of their treatment with people suffering from traumatic grief. Imaginal and in vivo exposure were the primary strategies for grief reduction (e.g., listening to audiotaped personal accounts of trauma, in vivo hierarchies of painful contexts). Additionally, Shear et al. (2001) used interpersonal therapy techniques to help victims reengage with others. After 4 months of treatment, reduction of grief, depression, and anxiety symptoms was reported; however, the authors have not reported follow-up data, thus the long-term efficacy of this treatment is unknown.

The large dropout rate of those who lost loved ones as a result of a traumatic incident is worrisome; as a result, it is unclear whether this treatment is appropriate for people who may lose a loved one to an act of terror. Additional limitations include the older age of completers, the length of time since the death of the loved one (i.e., the mean was 3 years), and assumptions that participants experience avoidance as a hallmark symptom of traumatic grief, as demonstrated by the decision to employ in vivo hierarchies (i.e., the opposite may be true; people may be constantly thinking about the deceased and/or have intrusive

thoughts of the deceased). It is also unclear whether this treatment generalizes to younger people who have unexpectedly lost a loved one as a result of a senseless act of terror rather than losing a spouse or parent to old age.

Two randomized, noncontrolled trials of guided mourning for "morbid grief" (i.e., grief resulting from the loss of a significant other in which symptoms persist for more than a year) resulted in grief symptom improvement for the intervention and control groups, suggesting no differential impact of treatment (Mawson, Marks, Ramm, & Stern, 1981; Sireling, Cohen, & Marks, 1988). Participants received six sessions of either a guided mourning or antiexposure intervention. Those in the guided mourning group were instructed to participate in tasks involving exposure to avoided cognitive, affective, and behavioral cues (e.g., viewing pictures of loved ones, writing letters to the deceased). Conversely, the antiexposure group was encouraged to focus on the future rather than thinking about the past and to avoid all reminders of the deceased. Participants in both groups were assigned between-session tasks and were encouraged to engage in new activities. Results indicate that individuals in both groups demonstrated improvement on a number of variables at several intervals, up to 9 months posttreatment (Sireling et al., 1988). Overall, the exposure group performed significantly better than the antiexposure group only on a bereavement-avoidance task, as well as some measures of distress to bereavement cues (out of a total of 29 outcome measures). One possible conclusion is that support and encouragement to engage in new daily activities are the critical therapeutic ingredients that facilitated improvement. Limitations include failure to report modes of death of loved ones and the assumption that bereaved people avoid thoughts of the deceased (similar to Shear et al., 2001).

There have also been group interventions for those who may experience traumatic grief. For example, Murphy et al. (1998) conducted a 10-week, randomized, controlled trial for parents who lost a child to homicide, suicide, or accident. Parents participated in 2-hour treatment sessions. In the first hour of each group, parents learned skills pertaining to actively confronting problems (e.g., ways to release anger), respecting differences in mourning, closure (e.g., writing down thoughts and

feelings), and self-care. In the second hour, they shared death-related experiences and received emotional support and assistance in reframing the death and its consequences. The intervention resulted in differential effects for mothers and fathers, with mothers improving on 80% of mental distress measures, including depression, anxiety, and fear. Conversely, fathers improved on fewer than 50% of the measures. Additionally, higher self-efficacy, self-esteem, and positive reinterpretation of events at baseline predicted lower mental distress up to 2 years later for both mothers and fathers.

Furthermore, repressive coping predicted greater mental distress for fathers, and Murphy et al. (1998) postulate that repression of feelings in fathers may be difficult to reduce because of gender socialization and may contribute to some of these gender differences. Although mothers seemed to improve, when compared to the control group, there were no significant differences for either parent on any of the outcome measures (i.e., mental distress, trauma, loss accommodation, physical health, and marital satisfaction). When the results were parsed by level of distress, the intervention was beneficial for mothers with higher mental distress and grief at baseline. However, this may be a case of regression to the mean. Conversely, fathers with higher levels of PTSD at baseline did worse than control group fathers, which is of concern and may demonstrate that intervention should vary by gender.

Several potential moderators of treatment outcome were examined in a trial of complicated grief treatment among inpatients ($n = 139$) that were randomized into either interpretive (i.e., exploration of interpersonal and/or intrapersonal conflicts) or supportive (i.e., sharing of coping strategies) short-term group therapy (Ogrodniczuk & Joyce, 2004; Piper, McCallum, Joyce, Rosie, & Ogrodniczuk, 2001). Similar to Murphy et al. (1998), Ogrodniczuk & Joyce (2004) found that women had better outcomes than men following treatment. They report that men were less committed to their therapy groups and perceived by other group members as less compatible than women (Ogrodniczuk et al., 2004), which may suggest that men need different types of treatment or that separate gender groups may be most beneficial.

Several other factors contributed to improvement in symptoms following group including

personality factors (Ogrodniczuk, Piper, Joyce, McCallum, & Rosie, 2003), perceived social support from friends (Ogrodniczuk, Piper, Joyce, McCallum, & Rosie, 2002), interpersonal factors (Ogrodniczuk, Piper, McCallum, Joyce, & Rosie, 2002), and level of engagement in the group (Ogrodniczuk & Piper, 2003). More specifically, extraversion, conscientiousness, openness, secure attachment to the deceased, and recent social role functioning were positively associated with symptom improvement, and neuroticism was negatively associated with symptom improvement (Ogrodniczuk, Piper, McCallum, et al., 2002; Ogrodniczuk et al., 2003).

Two group studies were conducted with grieving adolescents. The first included African American adolescents exposed to homicide and consisted of a 10-week group therapy intervention aimed at reducing PTSD symptoms (Salloum, Avery, & McClain, 2001). Participants received psychoeducation about grief and trauma and were encouraged to share their thoughts and feelings about death. They were also taught about normative grief reactions, healthy coping techniques, safety, anger management, and ways to access support, utilize spirituality, and focus on future goals. Following the intervention, group members reported decreased reexperiencing and avoidance symptoms; however, there were no improvements in level of arousal. Interpretation of this study is greatly limited because of the lack of a control group and the absence of randomization. This study was also limited due to a large range of time since death (1–10 years). Rynearson, Favell, Gold, and Prigerson (2002) conducted a similar 10-session adolescent group study with incarcerated youths who had experienced the violent death of a friend or family member. They surveyed a wider range of outcome variables (e.g., depression, grief, and PTSD symptoms), all of which significantly decreased following intervention. Major limitations include lack of a control group and random assignment to condition as well as a small sample size. Additionally, Rynearson et al. (2002) failed to describe the type of treatment provided, although a treatment manual is available upon request.

Applications to Terrorism

Treatment research for traumatic grief is in its infancy, and major methodological problems limit

what can be gleaned from this literature. Some promising treatment approaches have been developed (e.g., Shear et al., 2001), but rigorous tests of these approaches are necessary before they can be recommended. Furthermore, given that individual or group treatment studies have not been conducted with people who have lost a loved one due to terrorism, the generalizability to such events is questionable. The one treatment study that included people who suffered *loss from traumatic means* reported the highest dropout rates (Shear et al., 2001). One possibility is that timing is a crucial aspect of these interventions and the most optimal timing of delivery is simply unknown; another is that existing individual treatments for traumatic grief do not generalize to those who have lost a loved one due to traumatic means.

Another possibility is that loss due to traumatic events represents a syndrome that is different from what has been traditionally defined as *complicated bereavement*, which can be associated with any type of loss (many studies of complicated bereavement include large numbers of widows and widowers who lost a loved one due to illness and/or old age). For example, when someone loses a loved one by traumatic means such as terrorism, the person is likely to experience excruciating intrusive thoughts about the deceased and, as a result, is likely to avoid reminders or triggers of these painful memories. In the case of terrorism, the intrusive thoughts will likely involve the means by which the loved one was killed. Thus, arguably, when someone dies as a result of terrorism, the clinical picture of the survivor is an amalgam of traumatic grief and PTSD, with both avoidance of images and reminders and intrusive thoughts of the loved one, especially if the deceased person was horrifically injured in the process.

Murphy et al. (1998) conducted groups with parents who had lost their children, who most closely represent people who have lost a loved one due to traumatic means such as terrorism. Unfortunately, compared to controls, the parents who received the intervention did not improve on any of the outcome measures. One possibility is that the support they received and the skills they were taught through the group were useful, but being exposed to stories of how other children died may have been retraumatizing. Future studies should investigate which treatment modality works best

for which group following the loss of a loved one due to terrorism.

Interventions that attempt to create or foster the use of social supports (e.g., support groups of similarly bereaved people) may be especially helpful given that social support is inversely related to symptoms of traumatic grief (Spooren, Henderick, & Jannes, 2000). However, women may benefit from group interventions to a greater extent than men, and these gender differences should be examined.

Arguably, exposure-based interventions may facilitate recovery for those traumatically bereaved individuals who avoid thinking about the deceased, the mode of death, or other reminders of the death (as compared to those who are nonavoidant). However, not everyone who suffers from traumatic grief experiences may exhibit avoidance as a predominant symptom pattern, so this should be carefully assessed, and treatment should be tailored accordingly. In addition, it should not be assumed that avoidance and suppression are necessarily signs of psychopathology. There is emerging consensus in the bereavement literature that evasion of painful affect can lead to positive outcomes from loss (e.g., Bonnano, 2004). It is likely that traditional CBT methods of reducing avoidance, such as imaginal and in vivo exposure, need to be carefully reconsidered. There may be cases that require exposure-based interventions because the functional impairments entail gross restrictions in functioning. Intense forms of emptiness, numbness, and despair may be addressable by behavioral activation strategies that promote active engagement with pleasurable activities.

The optimal timing of delivery of interventions for loss by terrorism is entirely unclear. Indeed, the timing of interventions with a bereaved population has been noted as a confounding variable in several studies (see Schut, Stroebe, van den Bout, & Terheggen, 2001). Some studies highlight the importance of allowing the grieving process to unfold naturally so that the bereaved can heal with time and find sources of support independently of receiving treatment; however, the dearth of controlled studies limits the ability to draw firm conclusions about intervention timing. Although there are clearly significant challenges inherent in conducting randomized clinical trials with this population, more rigorous tests of these approaches

with those who have lost loved ones due to terrorism are necessary to evaluate their efficacy (see Litz & Gibson, in press).

Evidence-Based Treatments for Alcohol Abuse

Research has established a link between trauma exposure, chronic PTSD, and alcohol consumption (Ouimette & Brown, 2002). Some evidence also indicates that alcohol consumption may increase following exposure to trauma (e.g., Burnam et al., 1988; Kilpatrick, Acierno, Resnick, Saunders, & Best, 1997) and disaster/terrorism events (North et al., 2002; Vlahov et al., 2002; Grieger, Fullerton, & Ursano, 2003; Vlahov, Galea, Ahern, Resnick, & Kilpatrick, 2004). For example, increases in alcohol consumption were reported by 25% of a sample of Manhattan residents 5–8 eight weeks following the 9/11 attacks (Vlahov et al., 2002), and increased drinking remained in evidence at 6 months (Vlahov et al., 2004). Grieger, Fullerton, and Ursano (2003) also reported increased use of alcohol in survivors of the 9/11 terrorist attack on the Pentagon.

In the context of terrorism and disaster, mental health providers may be confronted by survivors who have increased their consumption of alcohol. For those whose drinking increases to problem levels, it is important for alcohol consumption to be explicitly addressed. In fact, a large literature supports the effectiveness of relatively brief treatments in reducing consumption (e.g., Moyer, Finney, Swearingen, & Vergun, 2002; Dunn, 2003). Not much is yet known about how trauma survivors generally or terrorism survivors in particular will respond to these approaches. One study has demonstrated that a single 30-minute interview with patients admitted to a trauma center for treatment of injury who screen positive for excessive alcohol use can reduce alcohol consumption in those with existing alcohol problems (Gentilello et al., 1999). This intervention consisted of a motivational interview that explored personalized feedback about a patient's drinking habits. Quantity and frequency of consumption were compared to national norms, level of intoxication at admission was related to injury risk, negative consequences of alcohol as indicated on the screening tools were discussed, and negative physical consequences based on

abnormal laboratory test results and level of alcohol dependence based on questionnaire assessment were reviewed. The interviewer also stressed individual responsibility for reducing drinking, offered a menu of strategies for change, and provided a list of treatment resources in the local community. While this array of individual assessment information would not be available in crisis counseling situations, the general principles of review of individual drinking habits and consideration of options could be applied.

It is not known how best to provide such education following terrorist attacks. Possibly, brief education to reduce consumption can be supplied by media. A study conducted by Acierno, Resnick, Flood, and Holmes (2003) suggests that a 17-minute educational video delivered shortly following rape may be capable of reducing postrape substance abuse. The low-cost, easily administered educational intervention reduced the likelihood of marijuana abuse at 6 weeks, and there was a trend for the video to be associated with less alcohol abuse among women with a prior history of alcohol or marijuana use. Single-occasion interventions, whether provided via media or face-to-face contact, can be expected to have limited impact for some, and additional follow-up contacts may increase the impact of helping efforts. In another study of an intervention based on motivational enhancement (Miller & Rollnick, 2002), Longabaugh et al. (2001) reported that a 40–60 minute intervention plus a booster session was more effective in reducing alcohol-related negative consequences in patients seeking emergency medical care than standard care or a single-session intervention.

Disaster responders will also see those who may be at elevated risk for relapse into preexisting problems following exposure to a terrorist attack. Those who are in recovery from substance abuse problems, especially those recently abstinent, may benefit from monitoring and intervention to prevent relapse. Those who relapse should be referred for evidence-based treatment.

Conclusions

Given the considerable body of evidence supporting the use of CBT methods in treating PTSD, with some evidence of generalizability of these methods

to terrorism-related PTSD (Gillespie, Duffy, Hackmann, & Clark, 2002), these approaches should perhaps be offered to terrorism survivors who have developed PTSD. Traumatic grief interventions are in the early phase of development and should be regarded as exploratory in the context of terrorism. However, given the need to offer help to those who experience traumatic grief in that context, there may be sufficient anecdotal evidence from the manualized treatment of survivors of 9/11 to warrant consideration. Finally, brief alcohol reduction interventions conducted in a hospital trauma center have been effective, suggesting the possible utility of such interventions among survivors of terrorism and disaster.

Most of the research on the treatment of PTSD is for survivors whose problems have existed for some time. Thus, the current evidence base largely fails to speak to the real world of delivery of terrorism and disaster services, in which services may be provided immediately after an event and in the first weeks and months after a trauma. In the next section, we describe more comprehensively the range of interventions that should be considered and comment on them from the standpoint of current research and theory.

Toward an Integrated Intervention System

Features of a System of Care

Stepped Care

During and after terrorist attacks and in situations of ongoing threat of attack, people's need for assistance will vary widely, depending on aspects of their exposure, history, biology, personal resources, and the recovery environment. While it is expected that most people will continue to function well without intervention or will experience initial acute stress reactions but will recover without formal help, some will not. The challenge is to find better ways of matching people to services based on the nature and degree of their needs.

Many current postterrorism contacts between survivor and helper take place in a relatively informal meeting, on-scene, at an emergency shelter, or in the context of a community outreach visit. In these meetings, the helper offers support,

psychological first aid, and brief educational information. In fact, a one- or two-session brief counseling approach characterizes much of current-day disaster crisis counseling.

For those who have developed significant problems, it is likely that multiple-session interventions will be more helpful than a single contact. Some problems may require only two to five sessions. For those who do not improve following this level of help, sustained expert mental health care is indicated. This "stepped-care" approach matches people to a level of care in part based upon response to earlier steps and reduces the likelihood of unnecessary and inappropriate treatment (cf. Haaga, 2000).

Individual and Group Interventions

Interventions to prevent postterrorism problems must be delivered in a variety of interpersonal contexts. Most education and support will likely be provided in the context of individual contacts between disaster mental health workers or other community providers and survivors, and, to date, most of the efforts to develop trauma-related interventions have focused on individual care. However, in many postterrorism environments, individual care may be difficult to deliver (e.g., due to large numbers of affected persons, insufficient availability of mental health providers, or cost constraints), and group interventions provide a potentially cost-effective alternative.

Groups may be used soon after a terrorist attack or disaster to provide education, mobilize social support, and teach skills for coping with stress reactions and other posttrauma challenges. Compared with one-on-one services, they may be able to more effectively harness some important helping processes, including social support and social modeling. When terrorism survivors are part of an existing group that will continue functioning as a unit (e.g., work colleagues), the group will effectively act as part of the ongoing recovery environment, and members can be encouraged to support one another. In such a circumstance, group cohesion may serve a protective function and so may be useful as a target for helping efforts. When group structures permit multisession contact, educational messages can be repeated, supportive relationships among members can be strengthened, and recovery behaviors and skills can be shaped and reinforced. At a later time, group psychotherapies may represent an effective means of treating chronic PTSD (Foy et al., 2000).

To date, terrorism and disaster-specific group interventions require additional development and evaluation. The primary model of early group intervention to reduce the impact of trauma is group stress debriefing (Raphael & Wilson, 2000), but there is no evidence that this approach prevents PTSD (e.g., McNally, Bryant, & Ehlers, 2003), and in our view this approach is inappropriate because it is a single-session intervention that does not screen participants in any way for risk or need and there is no systematic vehicle to stepped care (Litz, Bryant, & Adler, 2002). Other group approaches for early disaster care (e.g., Ruzek, 2002b), disaster-related PTSD (e.g., Young, Ruzek, & Ford, 1999), and disaster-related sleep difficulties (Kra-kow et al., 2002) have been described.

A special case of group-related social support is the self-help or mutual aid group. When survivors join together to help one another, they can do much to provide mutual emotional support. For example, after the events of 9/11, families who lost loved ones in the World Trade Center attacks linked with families who experienced losses due to the bombing of the Oklahoma City federal building. Mutual aid groups can help members reestablish a sense of control over events and sometimes go beyond support functions to address political or legislative issues affecting themselves and their community.

Generally, in communities affected by terrorism, efforts should be made to restore a sense of control to survivors by helping them to take pragmatic action to improve their situation, strengthen perceived safety, and rebuild their community. Glass and Schoch-Spana (2002, p. 219) have suggested that naturally occurring civic, occupational, or information networks should be seen as "a potential conduit for organizing or facilitating public responses that are beneficial," related to information dissemination, outbreak monitoring, resource distribution, and survivor care. For example, various community networks could be mobilized to distribute antibiotics, convene vaccination gatherings, or organize home visits. A potentially important role for mental health providers is to help facilitate the development of self-help activities by survivor groups. Depending on the situation and the receptivity of the survivors, mental health providers could educate them about reactions to terrorism and ways of coping and provide advice on group structure and function.

Phase-Specific Care

Service delivery needs will evolve over time as on-scene support moves toward acute helping responses, then to the provision of early mental health services, and finally to the detection and delivery of care to those who develop enduring problems as a result of their exposure to terrorism. Services delivered immediately after the act of terrorism or other disaster, those organized in the first weeks and months after the event, and those made available in the longer term will differ greatly. The earliest efforts will focus on psychological first aid appropriate for most survivors. If problems appear severe or disabling or if they persist past the initial postevent period, brief crisis counseling is an option. If brief several-session help is insufficient to resolve problems, referral for mental health treatment may be warranted. Changes in service delivery over time reflect the changing needs of survivor populations and the fact that early posttrauma support may be useful for many survivors, while more intensive help at later times will be required by fewer persons.

Components of Care

Psychological First Aid

There is widespread agreement on the importance of "psychological first aid" (PFA) in the immediate aftermath of terrorist events (National Institute of Mental Health, 2002). PFA is an umbrella term for a variety of helping activities designed to contain distress and reduce acute stress responses. It includes restoration of sleep, reconnection of survivors with loved ones, and direction to helping resources (Litz et al., 2002). Figure 18.1 shows a list of early steps to provide for basic needs and PFA (Veterans Health Administration, 2003). These activities, although difficult to study empirically, are believed to be helpful and are widely judged as unlikely to cause additional harm. Some may lend themselves to more systematic development and delivery. For example, efforts to reduce immediate anxiety may benefit from the application of methods of anxiety management, such as simple training in deep breathing, which may be useful to offer more systematically to disaster survivors experiencing hyperarousal.

For a variety of reasons, there is a growing reluctance to go beyond this kind of pragmatic

help to provide more formal mental health interventions in the first days following exposure. Exceptions include providing treatment to those who are in danger (e.g., psychotic, suicidal) and those whose initial responses are extreme (e.g., intense panic) and who may benefit from short-term medications. However, with regard to most survivors, no single-session interventions that can be administered very soon after trauma have yet been shown to be effective in preventing later problems (Bisson, 2003).

Screening, Triage, and Referral

In the immediate aftermath of terrorist events, helping resources are likely to be very limited; thus more intensive psychological care must be reserved for those most in need. Initial triage efforts depend on the ability to differentiate between those whose problems require immediate help and those who may not require urgent care. When terrorist events involve biological or chemical attacks, the identification of those in need of more intensive care will be especially difficult. Emergency medical facilities may be overwhelmed by large numbers of help seekers. For example, following the Aum Shinrikyō cult sarin attacks in 15 Tokyo subway stations, approximately 5,000 people sought emergency care; almost 75% of those who were seen had not been exposed to sarin (Bowler, Murai, & True, 2001). Also, reactions to various biological or chemical agents may mimic stress reactions or psychiatric problems (Ursano, Norwood, Fullerton, Holloway, & Hall, 2003), making differential diagnosis difficult.

In addition to initial triage efforts, some approaches to early posttrauma intervention include an effort to identify those who are expected to be at risk for development of chronic problems so that preventive interventions can be delivered (Ruzek, in press). There is, however, a limited current ability to accurately differentiate in the first weeks between those whose distress and traumatic stress reactions will improve without help and those whose symptoms are unlikely to remit. After several months have passed, accuracy improves.

Nonetheless, identification of those who may be in need of mental health intervention occurs at all stages of response. Gross indicators of risk may be sufficient in some circumstances. These include severe direct exposure to the aftermath of violence, destruction, and traumatic loss. For example, in

the aftermath of 9/11, such groups included bereaved families, those evacuated from workplaces, and those involved in the recovery of remains. In the context of face-to-face interactions, outreach workers and mental health counselors routinely make judgments about whom to refer for counseling. In current disaster mental health practice, people who are using FEMA-funded crisis counseling services typically receive brief counseling (e.g., 1–3 sessions), and if they determine the need, crisis counselors refer these help seekers to more intensive mental health counseling. However, most disaster mental health training materials devote relatively little attention to evidence-based criteria for referral (Young, Ruzek, & Pivar, 2001), and little is known about how these determinations of need for referral are actually made.

While triage decisions are necessitated in many postdisaster environments, there is ongoing debate about the application of systematic screening to identify those who may need more intensive

mental health services. Wessely (2003) maintains that screening that is intended to facilitate the prevention of posttrauma psychological disorders should meet a variety of conditions, including that spontaneous recovery is unlikely, that those who are screened would not have presented for care in the absence of screening efforts, that there is a proven intervention for those detected, that the anticipated benefits of screening outweigh the negative consequences, that screening and treatment are acceptable to those screened, that a validated screening tool is available, and that evidence indicates that early treatment will lead to better outcomes than late treatment.

At present, these questions cannot be answered in the affirmative for early screening. Our ability to accurately identify those who are at risk for chronic problems is limited. Early symptom levels are not necessarily indicative of risk, and predictors of PTSD may vary significantly across trauma populations (Brewin, Andrews, & Valentine, 2000); moreover, the challenge is to predict other problems in addition to PTSD, including other anxiety, substance use, and mood disorders (Yehuda, McFarlane, & Shalev, 1998). Bryant (2003) has suggested that it may be premature to identify people for intervention before 2 weeks posttrauma, that active cognitive-behavioral intervention should not be offered earlier than 2 weeks, and that delay in intervention may be recommended in part because it may allow time for survivors to marshal resources and deal with practical problems.

With regard to posttraumatic stress symptoms, screening is possibly most effective several months posttrauma. In this context, validated screening tools and evidence-based treatment for PTSD have been developed. Following the World Trade Center attacks in New York, Project Liberty created a range of services intended to help the community; in its second year of operation, a paper-and-pencil screening tool was used to identify those who might benefit from a referral for more advanced services. Also in New York, Difede, Roberts, Jaysinghe, & Leck (n.d.) have developed a screening program for emergency relief workers who responded to the attacks. They used a battery of well-validated measures to screen for PTSD and other mental health disorders. There is a need for systematic evaluation of both early and later screening initiatives, related to their predictive validity, impact, and cost-effectiveness.

-
- Provide for basic survival needs and comfort
 - Help survivors achieve restful, restorative sleep
 - Preserve an interpersonal safety zone protecting basic personal space (privacy, quiet, personal effects)
 - Provide nonintrusive ordinary social contact
 - Address immediate physical health problems or exacerbations of prior illnesses
 - Assist in locating separated loved ones and friends and verifying their safety
 - Reconnect survivors with loved ones, friends, trusted others
 - Help survivors take practical steps to resume day-to-day life
 - Help them take practical steps to resolve pressing problems caused by the trauma (e.g., housing, finances)
 - Facilitate resumption of normal family, community, school, and work roles
 - Provide opportunities for grieving
 - Help them reduce problematic tension or anxiety to manageable levels
 - Support helpers with training in common reactions and stress management techniques
- Source: Veterans Health Administration (2003).
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Figure 18.1. Some elements of management of acute stress reaction

Selected Follow-Up With Survivors

One approach worth considering is the delivery of routine telephone follow-up monitoring of survivors who appear to be at risk for continuing posttrauma problems on the basis of known risk factors. This "screen and treat" (Brewin, 2003) approach has several potential benefits. It would identify those who should be monitored, not those who require early intervention. A simple request for permission to recontact a survivor at a later date may be less stigmatizing or less likely to engender negative responses from oneself and others. It is probable that such a follow-up opportunity will be welcomed and seen as a sign of significant interest and commitment on the part of the practitioner and parent organization. Those who do not wish to be followed up can simply deny permission. People will differ in their receptivity to offers of counseling at different points in time, and this approach may provide the survivor with multiple opportunities to seek services. If a survivor continues to report mental health problems 3 months after the terrorist event, counselors may have more confidence in the person's need for more formal help.

Survivor Education

One practice that remains widely supported at all stages of terrorism and disaster response is education for survivors and the community at large. However, it is important to note that this practice has not been empirically validated. Nonetheless, brief educational efforts are relatively nonstigmatizing and generally appreciated by survivors; they are low-cost forms of care that may be delivered through informal conversations or in structured formal presentations. After terrorist events that affect large numbers of people, such educational information will need to be delivered via cost-effective public media presentations, written materials, and group educational activities. Generally, educational content is selected for the following reasons:

- to help survivors better understand a range of posttrauma responses
- to normalize responses so that survivors come to view their posttrauma reactions as typical (e.g., not as reactions to be feared, signs of personal weakness, or signs of mental illness)
- to increase survivors' use of social support

- to increase adaptive ways of coping with the trauma and its effects and decrease problematic forms of coping (e.g., alcohol consumption, social isolation)
- to increase survivors' ability to help family members cope (e.g., information about how to talk to children about what happened) and, in some cases, include entire families in educational efforts
- to help survivors recognize the circumstances under which they should consider seeking counseling and to reduce obstacles to seeking therapeutic help (e.g., misperceptions of helping services, perceived stigma)
- to inform survivors where they can obtain additional help, including mental health counseling

An important early goal of educational intervention is the normalization of stress reactions, and research is needed to examine the normalization process and our ability to influence it; indeed, the emphasis on reducing fear and misinterpretation of acute stress responses is consistent with some current theories of PTSD (e.g., Ehlers & Clark, 2003). It is important that mental health responders ask about survivors' perceptions of their own reactions and help them better understand and manage them. Efforts should be made to reduce shame or embarrassment at seeking help, and mental health services should be described as commonsense and practical opportunities for support.

A challenge will be to combine education about stress and coping with information about the aftermath of the event. In bioterrorist incidents, mental health providers will need to work with medical educators to provide accurate and timely information about issues such as the biological agents, infection control, the care of seriously ill persons, and the unfolding situation itself in ways that are consistent with media-delivered public health messages. Another challenge will be to provide care for families, who in some cases may need the information conveyed at several different developmental levels.

Enhancement of Social Support

Postterrorism care should include significant efforts to increase social support for survivors. Although the ways in which support can help or hinder

recovery are not well understood, research does indicate that perceived social support is related to posttrauma and postdisaster outcomes. Lack of social support after a trauma is a risk factor for PTSD (Brewin, Andrews, & Valentine, 2000), and greater received and perceived social support has been associated with less distress among disaster survivors (Norris, Friedman, Watson, Byrne, Díaz, et al., 2002). Declines in social support account for a large share of disaster victims' subsequent declines in mental health (Norris et al., 2002).

Rather than seeking out mental health professionals, those affected by terrorist events primarily turn for help to nonprofessional sources such as family, friends, and colleagues (Luce & Firth-Cozens, 2002). As a result, mental health professionals must work with natural helping networks to increase support over time. In the immediate aftermath of a terrorist event, it is standard practice to make efforts to reestablish contact between disaster and terrorism survivors and their loved ones. Disaster workers also advise survivors to spend time with family and friends and to seek and offer support. Support groups are often established by helping professionals, and self-help groups sometimes provide significant opportunities for mutual helping.

In addition to the routine enhancement of social support with affected people, families, and communities, mental health providers should undertake to identify those who are socially isolated or lacking in social support and, if judged appropriate, take steps to increase their access to support. They should also routinely assess the interpersonal functioning of survivors and make efforts to maintain interpersonal functioning in those whose relationships are suffering as a result of exposure to the terrorism or disaster stressors. Exposure to terrorism and the development of PTSD and other problems may impair the survivors' relationships with significant others, including spouses or partners (North et al., 1999). This impairment may be common, for example, among emergency workers and their spouses.

Coping Skills Training

Disaster mental health responders routinely provide written materials about coping and review ways of coping with survivors. This instruction is primarily conveyed through brief advice and is a

simple low-intensity element of stepped care that reaches large numbers of survivors. When disaster mental health counseling settings provide opportunity for multiple contacts with survivors who are experiencing significant postevent problems, it is possible to go beyond the simple sharing of information to provide coping skills training. Such guidance can help survivors learn how to do the things that will support their recovery by delivering a cycle of instruction that includes education, modeling, coaching, repeated practice, and feedback. It can also include between-session task assignments with diary self-monitoring and real-world practice of these coping mechanisms. Skills taught in this way can include anxiety management (breathing retraining and relaxation), challenging maladaptive thoughts, emotional "grounding" (Najavits, 2002), anger management, and problem-solving skills. As noted previously, stress inoculation training (anxiety management) has been effective as a treatment for chronic PTSD (e.g., Foa et al., 1999).

To date, attempts to train survivors in these skills have not been systematically undertaken or evaluated in the context of disaster and terrorism. However, a single session of telephone-delivered anxiety management training has been shown to decrease anxiety among Israeli citizens who were worried about the possibility of a Scud attack (Somer, Tamir, Maguen, & Litz, 2005). When citizens called a hotline as a result of Scud-related distress, they were randomized to either cognitive-behavioral intervention or a standard hotline counseling (unconditional positive regard, empathic listening, validation, social support) control group. The intervention lasted around 15 minutes and included normalization of stress responses, instruction in diaphragmatic breathing and cognitive restructuring, phone practice of the latter techniques, and assignments to practice at home. Compared with standard hotline practice, the experimental intervention was associated with significantly less distress, anxiety, and worry about missile attack 3 days after the counseling. In addition to its innovative telephone delivery system, this project is significant for its demonstration of the utility of anxiety management skills training for those affected by disasters and terrorism. Also important is the fact that paraprofessional hotline counselors were trained in the anxiety

reduction intervention via a single 5-hour training workshop.

Interventions for Survivors Experiencing Significant Problems

As noted in the context of coping skills, some people whose problems do not respond to simple advice or education may benefit from multiple-session or intermediate-intensity interventions. For example, ASD has been established as a relatively strong predictor of development of chronic PTSD, and a cognitive-behavioral approach that includes education, anxiety management training, imaginal exposure therapy, in vivo exposure, and cognitive restructuring (cognitive therapy) has been shown to be significantly more effective in preventing PTSD and in decreasing depressive symptoms than simple education and support. To date, this approach has been tested with individual survivors of motor vehicle accidents, industrial accidents, and nonsexual assault that meet criteria for a diagnosis of ASD (Bryant, Harvey, Dang, Sackville, & Basten, 1998; Bryant, Sackville, Dang, Moulds, & Guthrie, 1999). It has been delivered over the course of four to five individual therapy sessions and initiated about 2 weeks after the trauma. In a long-term follow-up of those receiving their intervention, Bryant, Moulds, and Nixon (2003) reported that, 4 years after being helped, participants who had received the CBT intervention showed a lower intensity of PTSD symptoms than those receiving education and support.

Intermediate intensity services may hold promise for incorporating effective behavior-change methods (e.g., cognitive restructuring, anxiety management, therapeutic exposure, skills training, self-monitoring, social reinforcement) while requiring fewer resources than full mental health treatment, but they have not been tested with mass violence or disaster survivors as an early phase postdisaster intervention. However, Gillespie et al. (2002) conducted an open trial of a cognitive-behavioral therapy delivered between 1 and 34 months (median 10 months) postattack with survivors of the 1998 Omagh terrorist bombing in Northern Ireland who had developed PTSD. Ninety-one patients who met the criteria for PTSD resulting from the bombing received 2–78 sessions (with a mean of 8) of a treatment that combined imaginal exposure with cognitive therapy; 37% of

the survivors were treated in 5 or fewer sessions. Seventy-eight patients demonstrated significant pre-post improvement on standardized measures of symptoms from the treatment, with an effect size for improvement in PTSD symptoms of 2.47 (a magnitude of change comparable to or larger than controlled trials of CBT for PTSD). In this demonstration study, intensity of care (i.e., number of sessions) was determined by response to intervention and varied from a few sessions to many.

A cognitive-behavioral intervention was also delivered to some of the survivors of the New York City World Trade Center attacks, beginning approximately 18 months after 9/11, as part of an “enhanced” service offered under the auspices of Project Liberty crisis counseling programs. Composed of psychoeducation, coping skills training, and cognitive restructuring delivered in 9–12 sessions, it was provided to users of crisis counseling services who screened positive on a paper-and-pencil selection tool and was well received by providers and survivors (Norris et al., in press). Clinicians reported that this intervention was well received by clients, but no formal outcome assessment has been conducted to date.

In the years following an event affecting large numbers of survivors, many can be expected to develop chronic problems, including PTSD, despite the availability of crisis counseling services. Affected communities should continue to detect and treat PTSD in survivors who have not sought or benefited from access to these services. Postterrorism mental health response must therefore be extended in time and incorporate the implementation of screening programs in key community settings where survivors may present for help (e.g., primary care) and training of mental health providers in the evidence-based treatments discussed earlier. Such screening and treatment practices do not currently represent standard care in medicine and mental health.

Toward Terrorism-Related, Situation-Specific Interventions

Those who provide mental health services in the wake of terrorist attacks may be challenged to extend conventional disaster mental health approaches to meet the challenges associated with

specific postterrorism situations. For example, specific interventions for people who have experienced actual and perceived toxic exposure are not part of conventional disaster mental health training and require more development. In fact, the physical interventions that may be needed in terrorism environments—barrier environments, quarantine, restricted travel, mass immunization, use of gas masks, decontamination, and destruction of personal clothing and property—may increase stress levels among survivors (Holloway, Norwood, Fullerton, Engel, & Ursano, 1997; Norwood, 2001), and mental health activities may need to focus on assisting survivors in coping with these interventions. For example, in situations involving the delivery of vaccinations (or other medical prophylaxis), survivors may benefit from interventions that include assistance with decision making or address adherence to a physician's instructions. The wearing of gas masks has been associated with anxiety and panic in some people (e.g., Carmeli, Liberman, & Mevorach, 1991; Rivkind et al., 1999), and mental health providers may be called upon to assist people in adapting to this equipment. Those who are evacuated due to environmental risk may represent a high-risk group and may benefit from support and training before, during, and after their move.

Terrorist events can also involve ongoing exposure to legal proceedings, and mental health providers may need to help survivors manage trial-related stressors and exacerbation of distress. For example, following the bombing of Pan Am Flight 103 over Lockerbie, Scotland, those affected were provided with a Lockerbie trial handbook, opportunity to observe the trial proceedings via remote closed-circuit viewing, and funds to enable victims' family members to receive mental health counseling throughout the trial process (Smith, Kilpatrick, Falsetti, & Best, 2002). In some postterrorism environments, the risk of community violence can be expected to increase. This may be due to a breakdown in societal order or may affect particular segments of the community. For example, after the attacks of 9/11, violence and threats of violence against Arab Americans increased, meaning that mental health response was charged both with attempting to prevent or reduce anger and perpetration of violence and with helping Islamic families cope with situations of increased risk of harm.

Coping With the Continuing Threat of Terrorism

Although some interventions exist to help individuals cope with the *aftermath* of trauma and terrorism, there is scarce information about how to help people deal with the ongoing and *potential* threat of terrorism, especially in communities at risk. In order to better understand how to intervene in these communities, it is important to understand which types of coping styles produce the best mental health outcomes, especially in those who demonstrate resilience amid the threat of terror.

Following the tragedies of 9/11, the possibility of another terrorist attack in the United States was a looming threat, and U.S. citizens were warned to be on constant alert for suspicious activity. In this context, Silver, Holman, McIntosh, Poulin, and Gil-Rivas (2002) examined coping styles in a national sample and reported that, 6 months after the attacks, active coping (e.g., taking action to improve the situation) was inversely associated with distress and general anxiety. Conversely, denial, self-blame, and behavioral disengagement (i.e., giving up) predicted higher levels of distress. Furthermore, PTSD symptom severity 6 months after 9/11 was predicted by acceptance (e.g., learning to live with the situation), behavioral disengagement, denial, seeking social support, self-blame, and self-distraction (e.g., turning to work to take one's mind off of the situation). Overall, active coping seemed to lead to the best adaptation to the ongoing terrorist threat.

Given that most people will indeed cope well with the threat of ongoing terror and prove to be resilient, understanding the conditions that promote adaptation is a key ingredient in intervening appropriately with those who are not able to cope effectively. In the context of the attacks on 9/11, a prospective study was conducted in which people were surveyed prior to the terrorist attacks and again after they had occurred. Fredrickson, Tugade, Waugh, and Larkin (2003) determined that resilient individuals were able to find positive meaning in daily hassles and stressors and also reported more positive emotions and fewer negative ones following the attacks. Furthermore, there was an inverse relationship between resilience and depression symptoms, and this relationship, as well as that between resilience and growth in psychological resources, was mediated by positive emotions.

Positive emotions seem to be an important component in coping with the ongoing threat of terrorism and serve as a protective factor against negative psychological symptoms and distress.

There have also been a number of studies conducted internationally that help shed light on effective coping amid the threat of terror. Israel is a country in which the threat of terrorism is a chronic concern; it is an environment that is quite different from the United States, where overt terrorist acts are still a rarity. Consequently, Israelis have been living with the threat much longer than citizens in many other countries, which provides a unique perspective on how people cope with ongoing threat. In two studies, both adults and children who employed problem-focused coping, as compared to emotion-focused coping, did worse in the long run. Weisenberg, Schwarzwald, Waysman, Solomon, and Klingman (1993) surveyed children who were at risk for Scud attacks, and Gidron, Gal, and Zahavi (1999) surveyed adults who were at risk of transportation explosions. Measurement limitations (i.e., unstandardized measures of coping), administration timing (i.e., measuring coping directly following a terrorist event that obfuscates whether the types of coping measured are beneficial in acute versus chronically threatening situations), and specificity of coping reaction (i.e., whether ways of coping were evaluated generally versus encompassing methods specific to the terrorist events that preceded the surveys) were among some of the limitations of these studies.

Researchers have also measured coping in Ireland and France. In Northern Ireland, Cairns and Wilson (1989) found that those who were living in higher-violence areas used more distancing. Regardless of the actual violence in their neighborhood, people who appraised the violence as more severe used more social support seeking and less distancing (i.e., these were the two types of coping examined in this study). Therefore, those living in areas with greater potential for violence tended to distance themselves from the situation in order to cope. Limitations of the study included failure to test for association with mental health outcomes and failure to include a wider variety of ways of coping. In France, following a terrorist attack in a Parisian subway, Jehel, Duchet, Paterniti, Consoli, and Guelfi (2001) surveyed

victims of the bombing attack 6 and 18 months later and found that emotion-focused coping was positively associated and problem-focused coping was negatively associated with PTSD symptoms. Both of these studies surveyed individuals about 6 months after the attacks and occurred in countries that do not have to confront chronic terrorist attacks (i.e., these horrific situations were novel). These results are similar to those of Silver et al. (2002).

The need to focus on promoting positive emotionality in the context of coping with the threat of terrorism is an important intervention method that emerges from existing research. Indeed, positive emotionality has been demonstrated to be a resilience factor in several recent studies involving people who have been exposed to stressful events (e.g., Tugade & Fredrickson, 2004), and positive emotionality is consistently associated with growth following trauma (Liney & Joseph, 2004). Therefore, promoting positive emotionality in the context of coping with the threat of terror will perhaps allow people to be more resilient in the context of ongoing threat. With regard to optimal types of coping, study results are challenging to disentangle, given the diversity of environments and situations in which the studies were conducted. Many more studies should also be conducted before firmly drawing any conclusions about coping with an ongoing threat of terrorism. Nonetheless, one possibility is that emotion-focused coping may promote better health in chronically terror-ridden environments immediately following a terrorist event. Conversely, problem-focused coping may be more helpful in environments where terrorism is rarer in order to cope with the threat many months after a terrorist event.

Given the scarcity of studies that examine coping with the threat of potential terror, conclusive recommendations are difficult to make; however, at least one study has demonstrated that, although most people will have adequate resources and support to cope with the threat of terrorism on their own, cognitive-behavioral techniques such as relaxation training and modifying irrational beliefs about the threat may be helpful to people who require further assistance (Somer et al., 2005). Even for the average person who is not unduly burdened with the threat of potential terror,

challenging occasional maladaptive thoughts and relaxation techniques may be helpful.

Actual and Perceived Toxic Exposure

Biological terrorism is a serious threat that may be especially frightening for affected populations. Noy (2002) maintains that a primary prevention program is the most important component in the protection of citizens against biological warfare and that failure to implement such a program will result in maladaptive coping and an unnecessary increase in somatic and psychological casualties. Previous studies have suggested the importance of not only educating the masses about how to recognize the signs of a biological attack, which is an important goal in and of itself, but also preparing psychologically for such an attack (i.e., how to regulate anxiety about the threat of an attack). For example, during the Scud attacks in 1992, Israelis were taught how to use gas masks in preparation for biological warfare, given instructions on preparing sealed rooms, and provided with guidance about when to self-administer antidote injections. When Scud missiles were eventually launched, they did not contain biological warheads as feared. Nonetheless, the missiles caused widespread destruction, in some cases resulting in death. A study reviewing the medical records of patients who were hospitalized as a result of the attacks determined that 43% of these cases resulted from the victims' psychological response to the assault (Bleich, Dycian, Koslowsky, Solomon, & Wiener, 1992). Furthermore, 27% of those who were hospitalized had mistakenly injected themselves with an antidote, and there was a great deal of overlap between mistaken antidote injections and individuals classified as psychological casualties.

Given these high rates of psychological hospitalization, one specific intervention recommendation would be to systematically educate citizens about psychological reactions to the threat of terrorism. This could be done in conjunction with education about different biological agents, how to recognize signs of a biological attack, and specific behavioral steps that should be taken in the event of such an attack. Educating the public about psychological responses and how to counteract them (e.g., challenging irrational thoughts, relaxation training) is arguably an important step toward minimizing psychological casualties in the event that such an attack should occur and may

reduce the burden of preventable admissions. Benedek, Holloway, and Becker (2002) contend that lucid, consistent, easily available, dependable, and redundant information that is distributed from reliable sources will curtail uncertainty and fear about the cause of a symptom and that the absence of such information is likely to be associated with unnecessary treatment and use of resources. Particular attention should be given to special populations, such as patients with preexisting anxiety disorders who may have difficulty following instructions that would ensure their survival. As was the case in Israel, individuals with preexisting anxiety disorders may develop anxiety attacks when faced with taking steps to ensure their safety, such as utilizing a gas mask during a possible attack (e.g., Rivkind et al., 1999).

Education also should be provided concerning which types of samples to submit for further testing, given that public health laboratories may otherwise be overburdened with samples, thus taxing existing resources. For example, following the deaths due to anthrax, one state public health laboratory received 1,496 environmental submissions of anthrax, all of which tested negative for bioterrorism agents (Dworkin, Ma, & Golash, 2003). Education is important not only to prevent putting an unnecessary burden on the public health system but also to ensure that suspected outbreaks are reported in a timely and efficient manner. For example, Ashford et al. (2003) have reported that, for six outbreaks in which bioterrorism or intentional contamination was possible, reporting was delayed for up to 26 days, arguing that education and frontline work by healthcare professionals and local health departments are crucial to the dissemination of critical information.

Health

Many of those affected by terrorist events will complain of health or somatic symptoms, especially in connection with events involving possible exposure to chemical, biological, or radiological toxins. Both medical professionals and mental health professionals will face the challenge of distinguishing symptoms of actual exposure from stress-related somatic symptoms, and the relationships between stress and health difficulties will be difficult to interpret in many cases. Having the best possible information is important if mental and

medical health providers are to help reduce anxiety-eliciting misinformation and rumor (Hyams, Murphy, & Wessely, 2002).

For those with inexplicable health problems, Fischhoff and Wessely (2003) have outlined some simple principles of patient management that may be useful in the context of terrorist attacks: Focus communication around patients' concerns; organize information coherently; give risks as numbers; acknowledge scientific uncertainty; use universally understood language; and focus on relieving symptoms. Although relatively little is known about treating these problems, a recent clinical trial comparing treatments for Gulf War illness may have some relevance to similar complaints associated with terrorist incidents. Donata et al. (2003) have reported that both cognitive-behavioral group therapy (CBGT) and exercise were effective; CBGT improved physical function, whereas exercise led to improvement in many of the symptoms of Gulf War veterans' illnesses. Both treatments improved cognitive symptoms and mental health functioning, but neither improved pain. In this study, CBGT was specifically targeted at physical functioning and included time-contingent activity pacing, pleasant activity scheduling, sleep hygiene, assertiveness skills, confrontation of negative thinking and affect, and structured problem-solving skills. The low-intensity aerobic exercise intervention was designed to increase activity level by having veterans exercise once per week for 1 hour in the presence of an exercise therapist and independently two to three times per week.

It is likely that most of those who seek help for stress-related complaints will focus on physical symptoms and present in emergency medicine (Ruzek, Young, Cordova, & Flynn, 2004) and primary care medical settings rather than to crisis counseling services. This can be expected both immediately following possible exposure, when large numbers of people have begun to worry even before the extent of actual community and individual exposure is known, and in the months and years postdisaster, when people visit their physicians with stress-related health concerns (e.g., headaches, sleep difficulties). For the primary care provider, this means that patients will require screening for exposure to traumatic events and posttraumatic symptomatology. In the months and years following an event, systematic screening can lead to better identification of stress-related pro-

blems and increased rates of referral for mental health care (cf. Leskin, Ruzek, Friedman, & Gusman, 1999).

Service Delivery Challenges in the Postterrorism Environment

The Context of Ongoing Threat

As mentioned earlier, many terrorism situations present a continuing possibility of additional attacks. Circumstances of ongoing threat may create anticipatory fears (Piotrowski & Brannon, 2002; Silver et al., 2002), sustain anxiety, and potentially interfere with recovery in those who have survived a previous attack. Some evidence suggests that the disrupted daily routines created by these circumstances may be associated with PTSD symptomatology (Shalev, Tuval-Mashiach, Frenkiel, & Hadar, 2004). Because interventions that are designed for the treatment of PTSD have been applied primarily under conditions of relative safety (i.e., threat of continued harm is minimal), questions can be raised about their generalizability to some terrorist-threat environments. If realistic ongoing exposure to continued attacks is part of the environment in which traumatic stress reactions must be managed, this may have implications for mental health services. Shalev et al. (2003) have described modifications in the delivery of cognitive-behavioral treatment for PTSD related to terrorist attacks in Israel, designed to reflect a terror-ridden environment. During in vivo exposure assignments, survivors were encouraged to expose themselves to situations that were clearly safe but not to those widely considered dangerous and avoided by most of the populace (e.g., city centers where repeated bombings had occurred).

They also noted that differences in cognitions underlying avoidance by the general population compared with avoidance by those with PTSD. Members of the latter group were thinking, "if I go, there will definitely be another attack, and this time I will definitely die," whereas those without PTSD were thinking, "the risk is very small, but I really don't need to go and buy a book—it is not worth the risk" (Shalev et al., 2004, p. 182). Cognitive therapy was applied to help the members of the PTSD group modify their beliefs. Finally, terror survivors in treatment were frequently

exposed to additional traumatic events during therapy. They were advised to limit indirect media exposure by not watching detailed news reports, their appropriate avoidance was characterized as "positive safety behaviors," and their goal was achieving "normal fear." It can be anticipated that such pragmatic flexibility in the modification of interventions will be needed to provide care in the midst of continuing danger and other challenging aspects of the postterrorism environment.

Availability of Evidence-Based Services

A second contextual constraint in the postdisaster environment is the likelihood of limited availability of evidence-based care for PTSD. Most mental health providers have not been trained in evidence-based treatments, and in most affected communities, the demand is likely to outstrip the supply. However, recent evidence suggests that mental health professionals can rapidly be trained in the delivery of these treatments.

In an important first demonstration of the feasibility of training indigenous mental health providers in evidence-based treatments, Gillespie et al. (2002) conducted an open trial of cognitive therapy with survivors of the 1998 Omagh terrorist bombing in Northern Ireland. Therapists were National Health Service mental health providers with no previous experience in treating trauma. The study suggests that this intervention can easily be disseminated and effectively implemented and is promising for the potential delivery of CBT interventions by a range of mental health professionals and paraprofessionals following disasters.

Following the attacks of 9/11, several efforts to train mental health providers in evidence-based treatments were undertaken. Neria, Suh, and Marshall (2003) described their efforts to provide systematic training and supervision in PTSD prolonged-exposure treatment for New York City therapists (Foa & Rothbaum, 1998). Training was initiated approximately 2 months after the attacks, and over a 12-month period, more than 500 local clinicians were trained. This project is notable for its use of a theory of behavior change to guide the design of dissemination efforts and its evaluation of the impact of training activities on changes in provider attitudes, behaviors, and self-efficacy.

Together, these efforts demonstrate the feasibility of the dissemination of evidence-based

methods of care after an event has taken place, as well as their potential for reducing PTSD symptoms. They also suggest that such efforts will require workshop-style training, ongoing supervision and consultation, and the development of strategies to maintain delivery of services (cf. Young, Ruzek, Wong, Salzer, Naturale, et al., in press). In the New York City training program mentioned earlier, clinicians perceived clinical case demonstration as the most valuable training mode; they also considered role plays as very useful, and lectures were rated as the least valuable (although they were seen as useful in giving theoretical information). Generally, the selection, training, and support of providers are critical parts of postterrorism response. Preplanned, systematic procedures can be expected not only to improve the quality of care but also to help in answering common service-delivery questions: how to ensure that the large numbers of volunteers who show up after disaster events are competent to offer help; how to incorporate important local systems resources (e.g., local clergy) who do not possess standard disaster training or credentials; and how to decide which volunteers to turn away.

Obstacles to Mental Health Providers' Access to Survivors

Reluctance of Survivors to Seek Available Mental Health Care

In most disasters, many of those who are affected do not use the available crisis counseling programs or the more conventional mental health services. For example, 3–6 months after the World Trade Center attacks in New York City, only 27% of those reporting severe psychiatric symptoms had obtained mental health treatment (Delisi et al., 2003). Following the terrorist bombing of Pan Am 103 over Lockerbie, Scotland, relatively few family members of those who perished sought counseling despite significant levels of distress (Smith et al., 2002). This reluctance to use mental health services appears to extend to emergency workers (e.g., North et al., 2002) and medical staff (e.g., Luce & Firth-Cozens, 2002).

Some of this reluctance to use services may represent an acceptance of posttraumatic distress that reflects an awareness that some stress symptoms are to be expected and that life can go on nonetheless. Some people who endorse high levels

of PTSD symptoms may not label themselves as significantly distressed or disabled, as has been found with Israeli citizens exposed to continuous terror (Shalev et al., 2004). As Shalev and colleagues have noted, PTSD symptoms are to be expected in communities that are subjected to ongoing terrorist attacks and may not represent maladaptive reactions. However, stigma and other obstacles likely play an important role as well. For those who lost family members in the Lockerbie bombing, the most frequent reasons given for not using counseling included thinking that they could handle it with help from family, friends, and their religious faith; that mental health counseling is a sign of weakness and felt stigmatizing; that they could not afford it financially; or that they could not admit to having a problem (Smith et al., 2002).

It is important to recognize that not everyone needs mental health treatment and that, for some, seeking help from one's family, friends, and/or religious faith is adequate and offers sufficient support. However, those who attempt to offer evidence-based terrorism and disaster interventions must acknowledge this underutilization of services and take steps to reduce any obstacles to appropriate utilization by those in need. Disaster mental health practice has evolved to address this reality by including significant outreach components. Much help is provided at places where survivors congregate as mental health responders offer "therapy while walking around." Outreach workers seek out survivors in shopping malls, on doorsteps, in workplaces, and at religious gatherings. At large events, the mass media are harnessed to market crisis counseling programs; in New York, the services of Project Liberty were advertised via major public education campaigns that involved television spots in which well-known celebrities appeared.

Relatively little is known about how to encourage the use of services and how survivors make decisions about self-referral. In much postterrorism/disaster education, information is presented to help survivors differentiate between normal reactions to the event and those that may warrant counseling. These efforts are appropriate, but it is not known whether they are effective in encouraging appropriate self-referral. More efforts should be made to understand the perspectives of survivors themselves. For example, Difede et al. (n.d.) have reported that, among emergency services workers

who responded to the World Trade Center collapse, distress at trauma reminders was seen as a normal reaction to the events and not a reason to seek treatment. Rather, anger, irritability, and sleep problems were seen as reasons to seek help.

A better understanding of what motivates people who need help to actually seek it might be useful in marketing these services, increasing engagement in counseling, and widening acceptance of mental health referral. Since many disaster and terrorism survivors will talk to their primary care practitioners, ways of addressing mental health in these settings will be important. Others will seek assistance in emergency rooms. More generally, efforts to destigmatize help seeking are in need of creative development. One possibility involves having a mental health worker available at the emergency room or within a medical practice to help patients struggling with issues that are more psychological in nature (i.e., a "one-stop shopping" model of care). The idea is that, once the patient meets with the mental health professional and rapport is established, transition to short-term problem-focused therapy will occur with greater ease.

Restrictions on Physical Access to Survivors

In some events, it may be difficult for mental health providers to establish face-to-face contact with survivors. This may be due to restrictions on travel by authorities, perceptions of ongoing environmental danger (e.g., continuing risk for terrorist attack or toxic exposure), or, possibly, quarantine. In situations of ongoing risk of exposure to biological toxins, providers themselves may be reluctant to work with possibly infected survivors. Telephone- or Internet-delivered services may be useful in these circumstances. Both cognitive-behavioral telephone (Greist et al., 2000; Mohr et al., 2000; Somer et al., 2005) and Internet interventions (Gega, Marks, & Mataix-Cols, 2004) have proven helpful with a variety of mental health problems. Future research should focus on testing these modalities of help following a terror event, especially given their ability to provide a convenient and stigma-reducing vehicle to promote self-management (Gega, Marks, & Mataix-Cols, 2004).

Providers as Survivors

Especially in large-scale terrorist attacks, many of those who are called upon to provide mental health

services will themselves be affected by the event. For example, following the 9/11 terrorist attack, many employees of the Pentagon's Family Assistance Center were in the building when it was hit or lost friends and colleagues (Huleatt, LaDue, Leskin, Ruzek, & Gusman, 2002). In some events, mental health workers may be concerned about the well-being of their loved ones. The fact that, in some scenarios, workers will have been exposed to the terrorist event and will themselves be experiencing stress reactions may affect their ability to respond and provide care. For example, in a simulation of a biological outbreak, some responders and their spouses disagreed about reporting for duty (Di-Giovanni Jr., Reynolds, Harwell, Stonecipher, & Burkle Jr., 2003). In the 1994 outbreak of plague in Surat, India (Ramalingaswami, 2001), doctors were among the estimated 600,000 people who fled the city, believing that nothing could be done to effectively treat the outbreak. In designing mental health response postterrorism, it will be important to anticipate that staff will experience conflict between their work and personal/family roles. Systematic staff care procedures should be developed, and steps should be taken to minimize the extent to which staff members may be distracted by concerns about their family and/or community (e.g., by establishing systems to enable staff contact with loved ones).

Future of Mental Health Response in Terrorism

Changing Models of Disaster Mental Health Service Delivery

Psychological research on prevention of PTSD and other posttrauma problems has implications for delivery of postterrorism care. Potentially valuable is an effort to synthesize lessons learned from different groups of trauma survivors, for whom early intervention services have often evolved independently with resulting differential strengths (Ruzek, in press). However, ways of integrating psychological treatment and disaster mental health "resilience" perspectives requires development and experimentation. In the context of terrorism and other community disasters, emphasis on the identification of vulnerable or high-risk individuals and

groups conflicts with an evident need to view affected people and communities as survivors and to emphasize capacity and commitment to resist efforts at intimidation and to overcome adversity (Hyams et al., 2002).

On the other hand, in the aftermath of the events of 9/11, there was considerable questioning of the fit between the disaster mental health crisis counseling program model (with its emphasis on normalization and low-level interventions for many people) and the significant mental health impact of such a high-magnitude terrorist event (Norris et al., in press). Much concern was expressed about the adequacy of such brief interventions for survivors who were the most severely affected. The inclusion of enhanced, moderate-intensity services is part of an ongoing evolution of disaster mental health practice to meet the needs of such groups (Gibson et al., in press).

Many of the procedures that have been developed as mental health interventions are based on an educational, skills-training model. Cognitive-behavioral interventions for posttraumatic stress in particular are based on a model that stresses that posttrauma problems are the outcomes of normal adaptive learning processes (Follette & Ruzek, in press) and interventions derived from the model are often relatively brief, pragmatic, and goal directed, features that lend themselves to application following disasters and terrorism.

Technology and Terrorism Response

Communication technologies will be increasingly harnessed to provide interventions for individuals and groups in future terrorist attacks and disasters. The Project Liberty 800-number hotline operating in New York was widely hailed as a major source of support and referral information for survivors and a key useful feature of 9/11 response (Norris et al., in press), and it can be assumed that similar efforts will be widely implemented in the future. The demonstration that anxiety management may be effectively undertaken via telephone will only accelerate exploration of phone services. Similarly, the Internet saw significant use during 9/11 that prefigures wider application. The Project Liberty website (<http://www.projectliberty.state.ny.us/>) provided information and other services to crisis counselors and terrorism survivors alike, and the

National Center for PTSD site (<http://www.ncptsd.org>) attracted a heavy volume of traffic. Because of their capacity to reach large numbers of affected individuals and their relative ease of use and circumvention of concerns about stigma and confidentiality, these technologies have significant potential to become a key element of stepped care, supplement face-to-face care, and improve post-disaster response (Ruzek, 2002a).

Summary

No individual victims, groups of victims, or communities victimized by terrorism escape unscathed. However, most people will not develop formal long-term mental health disturbances. The key practical, ethical, logistic, clinical, and administrative challenge in the aftermath of mass violence is to identify those who are most at risk for chronic posttraumatic mental health problems and functional impairments. Secondary prevention of these problems is critical because the life-course impact of trauma for those most at risk is pernicious and disabling. Unfortunately, risk and resilience research is in its infancy. However, there are rules of thumb to guide efforts at devoting resources to those most at risk following a terrorist attack; the most important risk factors are, in order of importance, degree of life threat and loss of life, traumatic loss, direct exposure to the aftermath of violence (e.g., seeing the dead and dying), and loss of personal and social resources as a result of the terrorist event. In this chapter we have described the evidence to support various clinical interventions and strategies to address those most in need. When there was no evidence to address a given problem, we offered a set of practical and least restrictive options for treating survivors of terror.

References

- Aciermo, R., Resnick, H. S., Flood, A., & Holmes, M. (2003). An acute post-rape intervention to prevent substance use and abuse. *Addictive Behaviors*, 28, 1701-1715.
- Amir, M., Weil, G., Kaplan, Z., Tocker, T., & Witztum, E. (1998). Debriefing with brief group psychotherapy in a homogenous group of non-injured victims of a terrorist attack: A prospective study. *Acta Psychiatrica Scandinavica*, 98, 237-242.
- Ashford, D. A., Kaiser, R. M., Bales, M. E., Shutt, K., Patrawalla, A., McShan, A., et al. (2003). Planning against biological terrorism: Lessons from outbreak investigations. *Emerging Infectious Diseases*, 9, 515-519.
- Benedek, D. M., Holloway, H. C., & Becker, S.M. (2002). Emergency mental health management in bioterrorism events. *Emergency Medicine Clinics of North America*, 20, 393-407.
- Bisson, J. I. (2003). Single-session early psychological interventions following traumatic events. *Clinical Psychology Review*, 23, 481-499.
- Bleich, A., Dycian, A., Koslowsky, M., Solomon, Z., & Wiener, M. (1992). Psychiatric implications of missile attacks on a civilian population: Israeli lessons from the Persian Gulf War. *Journal of the American Medical Association*, 268, 613-615.
- Bonanno, G. A. (2004). Loss, trauma, and human resilience: Have we underestimated the human capacity to thrive after extremely aversive events? *American Psychologist*, 59, 20-28.
- Boudewyns, P. A., & Hyer, L. (1990). Physiological response to combat memories and preliminary treatment outcome in Vietnam veteran PTSD patients with direct therapeutic exposure. *Behavior Therapy*, 21, 63-87.
- Bowler, R. M., Murai, K., & True, R. H. (2001, January/February). Update and long-term sequelae of the sarin attack in the Tokyo, Japan subway. *Chemical Health and Safety*, 1-3.
- Brewin, C. R. (2003). *Post-traumatic stress disorder: Malady or myth?* London: Yale University Press.
- , Andrews, B., & Valentine, J. D. (2000). Meta-analysis of risk factors for posttraumatic stress disorder in trauma-exposed adults. *Journal of Consulting and Clinical Psychology*, 68, 748-766.
- Bryant, R. A. (2003). Cognitive behaviour therapy of acute stress disorder. In R. Orner & U. Schnyder (Eds.), *Reconstructing early intervention after trauma: Innovations in the care of survivors* (pp. 159-168). Oxford: Oxford University Press.
- Bryant, R. A., Harvey, A. G., Dang, S. T., Sackville, T., & Basten, C. (1998). Treatment of acute stress disorder: A comparison of cognitive-behavioral therapy and supportive counseling. *Journal of Consulting and Clinical Psychology*, 66, 862-866.
- Bryant, R. A., Moulds, M. L., & Nixon, R. D. V. (2003). Cognitive behaviour therapy of acute stress disorder: A four-year follow-up. *Behaviour Research and Therapy*, 41, 489-494.
- Bryant, R. A., Sackville, T., Dang, S. T., Moulds, M., and Guthrie, R. (1999). Treating acute stress disorder: An evaluation of cognitive behavior

- therapy and supportive counseling techniques. *American Journal of Psychiatry*, 156, 1780-1786.
- Burnam, M. A., Stein, J. A., Golding, J. M., Siegel, J. M., Sorenson, S. B., Forsythe, A. B., et al. (1988). Sexual assault and mental disorders in a community population. *Journal of Consulting and Community Psychology*, 56, 843-850.
- Cairns, E., & Wilson, R. (1989). Coping with political violence in Northern Ireland. *Social Science and Medicine*, 28, 621-624.
- Carmeli, A., Liberman, N., & Mevorach, L. (1991). Anxiety-related somatic reactions during missile attacks. *Israel Journal of Medical Sciences*, 27, 677-680.
- Cooper, N. A., & Clum, G. A. (1989). Imaginal flooding as a supplementary treatment for PTSD in combat veterans: A controlled study. *Behavior Therapy*, 20, 381-391.
- Delisi, L. E., Maurizio, A., Yost, M., Papparozi, C. F., Fulchino, C., Katz, C. L., et al. (2003). A survey of New Yorkers after the Sept. 11, 2001, terrorist attacks. *American Journal of Psychiatry*, 160, 780-783.
- Difede, J., Roberts, J., Jaysinghe, N., & Leck, P. (manuscript submitted for publication). Evaluation and treatment of firefighters and utility workers following the World Trade Center attack.
- DiGiovanni, C., Jr., Reynolds, B., Harwell, R., Stonecipher, E. B., & Burkle, F. M., Jr. (2003). Community reaction to bioterrorism: Prospective study of simulated outbreak. *Emerging Infectious Diseases* (serial online). Retrieved January 22, 2006, from <http://www.cdc.gov/ncidod/EID/v019n06/02-0769.htm>
- Donata, S. T., Clauw, D. J., Engle, C. C., Guarino, P., Peduzzi, P., Williams, D. A., et al. (2003). Cognitive behavioral therapy and aerobic exercise for Gulf War veterans' illnesses: A randomized controlled trial. *Journal of the American Medical Association*, 289, 1396-1404.
- Dunn, C. (2003). Brief motivational interviewing interventions targeting substance abuse in the acute care medical setting. *Seminars in Clinical Neuropsychiatry*, 8, 188-196.
- Dworkin, M. S., Ma, X., & Golash, R. G. (2003). Fear of bioterrorism and implications for public health preparedness. *Emerging Infectious Diseases*, 9, 503-505.
- Ehlers, A., & Clark, D. M. (2003). Early psychological interventions for adult survivors of trauma: A review. *Biological Psychiatry*, 53, 817-826.
- Fischhoff, B., & Wessely, S. (2003). Managing patients with inexplicable health problems. *British Medical Journal*, 326, 595-597.
- Foa, E. B., Dancu, C. V., Hembree, E. A., Jaycox, L. H., Meadows, E. A., & Street, G. P. (1999). A comparison of exposure therapy, stress inoculation training, and their combination for reducing posttraumatic stress disorder in female assault victims. *Journal of Consulting and Clinical Psychology*, 67, 194-200.
- Foa, E. B., & Rothbaum, B. O. (1998). *Treating the trauma of rape: Cognitive-behavioral therapy for PTSD*. New York: Guilford.
- , Riggs, D. S., & Murdock, T. B. (1991). Treatment of posttraumatic stress disorder in rape victims: A comparison between cognitive-behavioral procedures and counseling. *Journal of Consulting and Clinical Psychology*, 59, 715-723.
- Follette, V. M., & Ruzek, J. I. (in press). *Cognitive-behavior therapies for trauma* (2d ed.). New York: Guilford.
- Foy, D. W., Glynn, S. M., Schnurr, P. P., Jankowski, M. K., Wattenberg, M. S., Weiss, D. S., et al. (2000). Group therapy. In E. B. Foa, T. M. Keane, & M. J. Friedman (Eds.), *Effective treatments for PTSD: Practice guidelines from the International Society for Traumatic Stress Studies* (pp. 155-175). New York: Guilford.
- Fredrickson, B. L., Tugade, M. M., Waugh, C. E., & Larkin, G. R. (2003). What good are positive emotions in crisis? A prospective study of resilience and emotions following the terrorist attacks on the United States on September 11th, 2001. *Journal of Personality and Social Psychology*, 84, 365-376.
- Gega, L., Marks, I., & Mataix-Cols, D. (2004). Computer-aided CBT self-help for anxiety and depressive disorders: Experience of a London clinic and future directions. *Journal of Clinical Psychology*, 60, 147-157.
- Gentilello, L. M., Rivara, F. P., Donovan, D. M., Jurkovich, G. J., Daranciang, E., Dunn, C. W., et al. (1999). Alcohol interventions in a trauma center as a means of reducing the risk of injury recurrence. *Annals of Surgery*, 230, 473-483.
- Gibson, L., Ruzek, J. I., Naturale, A., Bryant, R. A., Hamblen, J., Jones, R., et al. (in press). Early intervention. Paper presented at SAMHSA/NIMH Screening and Assessment, Outreach, and Intervention for Mental Health and Substance Abuse Needs Following Disasters and Mass Violence meeting, August 26-28, 2003, Bethesda, MD.
- Gidron, Y., Gal, R., & Zahavi, S. (1999). Bus commuters' coping strategies and anxiety from terrorism: An example of the Israeli experience. *Journal of Traumatic Stress*, 12, 185-192.
- Gillespie, K., Duffy, M., Hackmann, A., & Clark, D. M. (2002). Community-based cognitive therapy in the

- treatment of post-traumatic stress disorder following the Omagh bomb. *Behaviour Research and Therapy*, 40, 345-357.
- Glass, T. A., & Schoch-Spana, M. (2002). Bioterrorism and the people: How to vaccinate a city against panic. *Clinical Infectious Diseases*, 34, 217-223.
- Glynn, S. M., Eth, S., Randolph, E. T., Foy, D. W., Urbaitis, M., Boxer, L., et al. (1999). A test of behavioral family therapy to augment exposure for combat-related posttraumatic stress disorder. *Journal of Consulting and Clinical Psychology*, 67, 243-251.
- Greist, J. H., Marks, I. M., Baer, L., Kobak, K. A., Wenzel, K. W., Hirsch, M. J., et al. (2002). Behavior therapy for obsessive-compulsive disorder guided by a computer or by a clinician compared with relaxation as a control. *Journal of Clinical Psychiatry*, 63, 138-145.
- Grieger, T. A., Fullerton, C. S., & Ursano, R. J. (2003). Posttraumatic stress disorder, alcohol use, and perceived safety after the terrorist attack on the Pentagon. *Psychiatric Services*, 54, 1380-1382.
- Haaga, D. A. (2000). Introduction to the special section on stepped-care models in psychotherapy. *Journal of Consulting and Clinical Psychology*, 68, 547-548.
- Holloway, H. C., Norwood, A. E., Fullerton, C. S., Engel, C. C., & Ursano, R. J. (1997). The threat of biological weapons: Prophylaxis and mitigation of psychological and social consequences. *Journal of the American Medical Association*, 278, 425-427.
- Huleatt, W. J., LaDue, L., Leskin, G., Ruzek, J., & Gusman, F. (2002). Pentagon Family Assistance Center interagency mental health collaboration and response. *Military Medicine*, 167(Suppl.), 68-70.
- Hyams, K. C., Murphy, F. M., & Wessely, S. (2002). Responding to chemical, biological, or nuclear terrorism: The indirect and long-term health effects may present the greatest challenge. *Journal of Health Politics, Policy, and Law*, 27, 273-291.
- Jehel, L., Duchet, C., Paterniti, S., Consoli, S. M., & Guelfi, J. D. (2001). Prospective study of post-traumatic stress in victims of terrorist attacks. *Encephale*, 5, 393-400.
- Keane, T. M., Fairbank, J. A., Caddell, J. M., & Zimering, R. T. (1989). Implosive (flooding) therapy reduces symptoms of PTSD in Vietnam combat veterans. *Behavior Therapy*, 20, 245-260.
- Kilpatrick, D. G., Acierno, R., Resnick, H. S., Saunders, B., & Best, C. L. (1997). A two-year longitudinal analysis of the relationships between violent assault and substance use in women. *Journal of Consulting and Clinical Psychology*, 65, 834-847.
- Krakow, B., Melendrez, D. C., Johnston, L. G., Clark, J. O., Santana, E. M., Warner, T. D., et al. (2002). Sleep dynamic therapy for Cerro Grande fire evacuees with posttraumatic stress symptoms: A preliminary report. *Journal of Clinical Psychiatry*, 63, 673-684.
- Leskin, G. A., Ruzek, J. I., Friedman, M. J., & Gusman, F. D. (1999). Effective clinical management of PTSD in primary care settings: Screening and treatment options. *Primary Care Psychiatry*, 5, 3-12.
- Linley, P. A., & Joseph, S. (2004). Positive change following trauma and adversity: A review. *Journal of Traumatic Stress*, 17, 11-21.
- Litz, B. T., & Gibson, L. (in press). Conducting research on early interventions. In E. C. Ritchie, P. J. Watson, & M. J. Friedman (Eds.), *Mental health intervention following disasters or mass violence*. New York: Guilford.
- Litz, B. T., & Gray, M. J. (2004). Early intervention for trauma in adults. In B. Litz (Ed.), *Early intervention for trauma and traumatic loss* (pp. 87-111). New York: Guilford.
- , Bryant, R., and Adler, A. B. (2002). Early intervention for trauma: Current status and future directions. *Clinical Psychology: Science and Practice*, 9, 112-134.
- Longabaugh, R., Woolard, R. E., Nirenberg, T. D., Minugh, A. P., Becker, B., Clifford, P. R., et al. (2001). Evaluating the effects of a brief motivational intervention for injured drinkers in the emergency department. *Journal of Studies on Alcohol*, 62, 806-816.
- Luce, A., & Firth-Cozens, J. (2002). Effects of the Omagh bombing on medical staff working in the local NHS trust: A longitudinal survey. *Hospital Medicine*, 63, 44-47.
- Marks, I., Lovell, K., Noshirvani, H., Livanou, M., & Thrasher, S. (1998). Treatment of posttraumatic stress disorder by exposure and/or cognitive restructuring: A controlled study. *Archives of General Psychiatry*, 55, 317-325.
- Mawson, D., Marks, I., Ramm, E., & Stern, R. (1981). Guided mourning for morbid grief: A controlled study. *British Journal of Psychiatry*, 138, 185-193.
- McNally, R., Bryant, R. A., & Ehlers, A. (2003). Does early psychological intervention promote recovery from posttraumatic stress? *Psychological Science in the Public Interest*, 4, 45-79.
- Miller, W. R., & Rollnick, S. (2002). *Motivational interviewing: Preparing people for change* (2d ed.). New York: Guilford.
- Mohr, D. C., Likosky, W., Bertagnolli, A., Goodkin, D. E., van der Wende, J., Dwyer, P., et al. (2000).

- Telephone-administered cognitive-behavioral therapy for the treatment of depressive symptoms in multiple sclerosis. *Journal of Consulting and Clinical Psychology*, 68, 356–361.
- Moyer, A., Finney, J. W., Swearingen, C. E., & Vergun, P. (2002). Brief interventions for alcohol problems: A meta-analytic review of controlled investigations in treatment-seeking and non-treatment-seeking populations. *Addiction*, 97, 279–292.
- Murphy, S. A., Johnson, C., Cain, K., Dimond, M., Das Gupta, A., Lohan, J., et al. (1998). Broad-spectrum group treatment for parents bereaved by the violent deaths of their 12-to-28-year-old children: A randomized controlled trial. *Death Studies*, 22, 1–27.
- Najavits, L. M. (2002). *Seeking safety: A treatment manual for PTSD and substance abuse*. New York: Guilford Press.
- National Institute of Mental Health. (2002). Mental health and mass violence: Evidenced-based early psychological intervention for victims/survivors of mass violence. A workshop to reach consensus on best practices. NIM publication no. 02–5138. Washington, DC: U.S. Government Printing Office.
- Neria, Y., & Litz, B. (in press). Bereavement by traumatic means: The complex synergy of trauma and grief. *Journal of Loss and Trauma*.
- Neria, Y., Suh, E. J., & Marshall, R. D. (2003). The professional response to the aftermath of September 11, 2001, in New York City: Lessons learned from treating victims of the World Trade Center attacks. In B. Litz (Ed.), *Early intervention for trauma and traumatic loss* (pp. 201–215). New York: Guilford.
- Norris, F. H., Friedman, M. J., Watson, P. J., Byrne, C. M., Diaz, E., & Kaniasty, K. (2002). 60,000 disaster victims speak: Part 1: An empirical review of the empirical literature, 1981–2001. *Psychiatry*, 65, 207–239.
- Norris, F. H., Hamblen, J. L., Watson, P. J., Ruzek, J. I., Gibson, L. E., Price, J. L., et al. (in press). Toward understanding and creating systems of postdisaster care: Findings and recommendations from a case study of New York's response to the World Trade Center disaster. In E. C. Ritchie, P. J. Watson, & M. J. Friedman (Eds.), *Mental health intervention following disasters or mass violence*. New York: Guilford.
- North, C. S., Nixon, S. J., Shariat, S., Mallonee, S., McMillen, J. C., Spitznagel, E. L., et al. (1999). Psychiatric disorders among survivors of the Oklahoma City bombing. *Journal of the American Medical Association*, 282, 755–762.
- North, C. S., Tivis, L., McMillen, J. C., Pfefferbaum, B., Spitznagel, E. L., Cox, J., et al. (2002). Coping, functioning, and adjustment of rescue workers after the Oklahoma City bombing. *Journal of Traumatic Stress*, 15, 171–175.
- Norwood, A. E. (2001). Psychological effects of biological warfare. *Military Medicine*, 166(Suppl. 2), 27–28.
- Noy, S. (2002). Early dissemination of information: An essential ingredient in the prevention of biological warfare. *Harefuah*, 141, 119.
- Ogrodniczuk, J. S., & Piper, W. E. (2003). The effect of group climate on outcome in two forms of short-term group therapy. *Group Dynamics: Theory, Research, and Practice*, 7, 64–76.
- , & Joyce, A. S. (2004). Differences in men's and women's responses to short-term group psychotherapy. *Psychotherapy Research*, 14, 231–243.
- Ogrodniczuk, J. S., Piper, W. E., Joyce, A. S., McCallum, M., & Rosie, J. S. (2002). Social support as a predictor of response to group therapy for complicated grief. *Psychiatry*, 65, 346–357.
- . (2003). NEO-five factor personality traits as predictors of response to two forms of group psychotherapy. *International Journal of Group Psychotherapy*, 53, 417–442.
- Ogrodniczuk, J. S., Piper, W. E., McCallum, M., Joyce, A. S., & Rosie, J. S. (2002). Interpersonal predictors of group therapy outcome for complicated grief. *International Journal of Group Psychotherapy*, 52, 511–535.
- Ouimette, P., & Brown, P. J. (2002). *Trauma and substance abuse: Causes, consequences, and treatment of comorbid disorders*. Washington, DC: American Psychological Association.
- Piotrowski, C. S., & Brannon, S. J. (2002). Exposure, threat appraisal, and lost confidence as predictors of PTSD symptoms following September 11, 2001. *American Journal of Orthopsychiatry*, 72, 476–485.
- Piper, W. E., McCallum, M., Joyce, A. S., Rosie, J. S., & Ogrodniczuk, J. S. (2001). Patient personality and time-limited group psychotherapy for complicated grief. *International Journal of Group Psychotherapy*, 51, 525–552.
- Prigerson, H. G., Shear, M. K., Jacobs, S. C., Reynolds, C. F., III, Maciejewski, P. K., Davidson, J. R. T., et al. (1999). Consensus criteria for traumatic grief: A preliminary empirical test. *British Journal of Psychiatry*, 174, 67–73.
- Ramalingaswami, V. (2001). Psychological effects of the 1994 plague outbreak in Surat, India. *Military Medicine*, 166, 29–30.
- Raphael, B., Minkov, C., & Dobson, M. (2001). Psychotherapeutic and pharmacological intervention for bereaved persons. In M. S. Stroebe, W. Stroebe, R. O. Hansson, & H. Schut (Eds.), *New*

- handbook of bereavement: Consequences, coping, and care (pp. 587–612). Washington, DC: American Psychological Association.
- Raphael, B., & Wilson, J. P. (2000). *Psychological debriefing: Theory, practice and evidence*. New York: Cambridge University Press.
- Resick, P. A., Nishith, P., Weaver, T. L., Astin, M. C., & Feuer, C. A. (2002). A comparison of cognitive-processing therapy with prolonged exposure and a waiting condition for the treatment of chronic posttraumatic stress disorder in female rape victims. *Journal of Consulting and Clinical Psychology*, 70, 867–879.
- Rivkind, A. I., Eid, A., Weingart, E., Izhar, U., Barach, P., Richter, E. D., et al. (1999). Complications from supervised mask use in post-operative surgical patients during the Gulf War. *Prehospital and Disaster Medicine*, 14, 107–108.
- Ruzek, J. I. (2002a). Dissemination of information and early intervention practices in the context of mass violence or large-scale disaster. *Behavior Therapist*, 25, 32–36.
- . (2002b). Providing "brief education and support" for emergency response workers: An alternative to debriefing. *Military Medicine*, 167(Suppl.), 73–75.
- . (in press). Models of early intervention following mass violence and other trauma. In E. C. Ritchie, P. J. Watson, & M. J. Friedman (Eds.), *Mental health intervention following disasters or mass violence*. New York: Guilford.
- , Young, B. H., Cordova, M. J., & Flynn, B. W. (2004). Integration of disaster mental health services with emergency medicine. *Prehospital and Disaster Medicine*, 19, 46–53.
- Rynearson, E. K., Favell, J. L., Gold, R., & Prigerson, H. (2002). Bereavement intervention with incarcerated youth. *Journal of the American Academy of Child and Adolescent Psychiatry*, 41, 893–894.
- Salloum, A., Avery, L., & McClain, R. P. (2001). Group psychotherapy for adolescent survivors of homicide victims: A pilot study. *Journal of the American Academy of Child and Adolescent Psychiatry*, 40, 1261–1267.
- Schnurr, P. P., Friedman, M. J., Foy, D. W., Shea, M. T., Hsieh, F. Y., Lavori, P. W., et al. (2003). Randomized trial of trauma-focused group therapy for posttraumatic stress disorder: Results from a Department of Veterans Affairs cooperative study. *Archives of General Psychiatry*, 60, 481–489.
- Schut, H., Stroebe, M. S., van den Bout, J., & Terheggen, M. (2001). The efficacy of bereavement interventions: Determining who benefits. In M. S. Stroebe, W. Stroebe, R. O. Hansson, & H. Schut (Eds.), *New handbook of bereavement: Consequences, coping, and care* (pp. 705–737). Washington, DC: American Psychological Association.
- Shalev, A. Y., Adessky, R., Boker, R., Bargai, N., Cooper, R., Freedman, S., et al. (2003). Clinical intervention for survivors of prolonged adversities. In R. J. Ursano, C. S. Fullerton, & A. E. Norwood (Eds.), *Terrorism and disaster: Individual and community mental health interventions* (pp. 162–188). New York: Cambridge University Press.
- Shalev, A. Y., Tuval-Mashiach, R., Frenkiel, S., & Hadar, H. (2004). Psychological reactions to continuous terror. Paper under review.
- Shear, M. K., Frank, E., Foa, E., Cherry, C., Reynolds, C., Bilt, J., et al. (2001). Traumatic grief treatment: A pilot study. *American Journal of Psychiatry*, 158, 1506–1508.
- Silver, R. C., Holman, E. A., McIntosh, D. N., Poulin, M., & Gil-Rivas, V. (2002). Nationwide longitudinal study of psychological responses to September 11. *Journal of the American Medical Association*, 288, 1235–1244.
- Sireling, L., Cohen, D., & Marks, I. (1988). Guided mourning for morbid grief: A controlled replication. *Behavior Therapy*, 19, 121–132.
- Smith, D. W., Kilpatrick, D. G., Falsetti, S. A., & Best, C. L. (2002). Postterrorism services for victims and surviving family members: Lessons from Pan Am 103. *Cognitive and Behavioral Practice*, 9, 280–286.
- Somer, E., Tamir, E., Maguen, S., & Litz, B. T. (2005). Brief cognitive-behavioral phone-based intervention targeting anxiety about the threat of attack: A pilot study. *Behaviour Research and Therapy*, 43, 669–679.
- Sporeen, D. J., Henderick, H., & Jannes, C. (2000). Survey description of stress of parents bereaved from a child killed in a traffic accident. A retrospective study of a victim support group. *Omega*, 42, 171–185.
- Tarrier, N., Pilgrim, H., Sommerfield, C., Faragher, B., Reynolds, M., Graham, E., et al. (1999). A randomized trial of cognitive therapy and imaginal exposure in the treatment of chronic posttraumatic stress disorder. *Journal of Consulting and Clinical Psychology*, 67, 13–18.
- Tarrier, N., Sommerfield, C., Pilgrim, H., & Humphreys, L. (1999). Cognitive therapy or imaginal exposure in the treatment of post-traumatic stress disorder. *British Journal of Psychiatry*, 175, 571–575.
- Tugade, M. M., & Fredrickson, B. L. (2004). Resilient individuals use positive emotions to bounce back from negative emotional experiences. *Journal of Personality and Social Psychology*, 86, 320–333.

- Ursano, R. J., Norwood, A. E., Fullerton, C. S., Holloway, H. C., & Hall, M. (2003). Terrorism with weapons of mass destruction: Chemical, biological, nuclear, radiological, and explosive agents. In R. J. Ursano & A. E. Norwood (Eds.), *Annual Review of Psychiatry*, Vol. 22 (pp. 125-154). Washington, DC: American Psychiatric Association.
- Veterans Health Administration. (2003). Management of post-traumatic stress. Publication 10Q-CPG/PTSD-04. Washington, DC: Clinical Practice Guideline Working Group, Office of Quality and Performance, Department of Veterans Affairs and Health Affairs, Department of Defense. Retrieved January 22, 2006, from http://www.oqp.med.va.gov/cpg/PTSD/PTSD_Base.htm
- Vlahov, D., Galea, S., Ahern, J., Resnick H., & Kilpatrick, D. (2004). Sustained increased consumption of cigarettes, alcohol, and marijuana among Manhattan residents after September 11, 2001. *American Journal of Public Health*, 94, 253-254.
- Vlahov, D., Galea, S., Resnick H., Ahern, J., Boscarino, J. A., Bucavals, M., et al. (2002). Increased use of cigarettes, alcohol, and marijuana among Manhattan, New York, residents after the September 11th terrorist attacks. *American Journal of Epidemiology*, 155, 988-996.
- Weisenberg, M., Schwarzwald, J., Waysman, M., Solomon, Z., & Klingman, A. (1993). Coping of school-age children in the sealed room during Scud missile bombardment and postwar stress reactions. *Journal of Consulting and Clinical Psychology*, 61, 462-467.
- Wessely, S. (2003). The role of screening in the prevention of psychological disorders arising after major trauma: Pros and cons. In R. J. Ursano, C. S. Fullerton, & A. E. Norwood (Eds.), *Terrorism and disaster: Individual and community mental health interventions* (pp. 121-145). New York: Cambridge University Press.
- Yehuda, R., McFarlane, A., & Shalev, A. (1998). Predicting the development of posttraumatic stress disorder from the acute response to a traumatic event. *Biological Psychiatry*, 44, 1305-1313.
- Young, B. H., Ruzek, J. I., & Ford, J. D. (1999). Cognitive-behavioral group treatment for disaster-related PTSD. In B. H. Young & D. D. Blake (Eds.), *Group treatments for post-traumatic stress disorder* (pp. 149-200). Philadelphia: Brunner/Mazel.
- Young, B. H., Ruzek, J. I., & Pivar, I. (2001). Mental health aspects of disaster and community violence: A review of training materials. Menlo Park, CA: National Center for PTSD; Washington, DC: Center for Mental Health Services.
- Young, B. H., Ruzek, J. I., Wong, M., Salzer, M., Natale, A., & Wisner, R. (in press). Disaster mental health training: Guidelines, considerations, and recommendations. In E. C. Ritchie, P. J. Watson, & M. J. Friedman (Eds.), *Mental health intervention following disasters or mass violence*. New York: Guilford.
- Zlotnick, C., Shea, T. M., Rosen, K., Simpson, E., Mulrenin, K., Begin, A., et al. (1997). An affect-management group for women with posttraumatic stress disorder and histories of childhood sexual abuse. *Journal of Traumatic Stress*, 10, 425-436.